

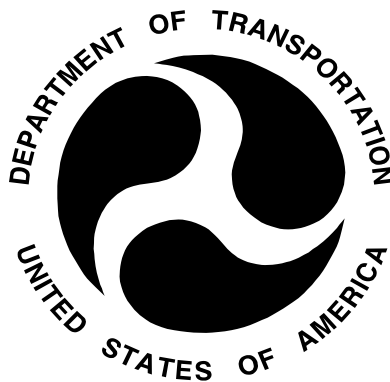
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

LABORATORY TEST PROCEDURE

FOR

FMVSS 118

**Power-Operated Window, Partition,
and Roof Panel Systems**



ENFORCEMENT
Office of Vehicle Safety Compliance
Room 6115, NVS-220
400 Seventh Street, SW
Washington, DC 20590

OVSC LABORATORY TEST PROCEDURE NO. 118
TABLE OF CONTENTS

	PAGE
1. PURPOSE AND APPLICATION.....	1
2. GENERAL REQUIREMENTS.....	2
3. SECURITY	4
4. GOOD HOUSEKEEPING	4
5. TEST SCHEDULING AND MONITORING	4
6. TEST DATA DISPOSITION.....	4
7. GOVERNMENT FURNISHED PROPERTY (GFP).....	5
8. CALIBRATION OF TEST INSTRUMENTS.....	6
9. PHOTOGRAPHIC DOCUMENTATION.....	7
10. DEFINITIONS.....	8
11. PRETEST REQUIREMENTS	8
12. COMPLIANCE TEST EXECUTION.....	11
13. POST TEST REQUIREMENTS.....	18
14. REPORTS	18
14.1. MONTHLY STATUS REPORTS.....	18
14.2. APPARENT TEST FAILURE	18
14.3. FINAL TEST REPORTS	18
14.3.1 COPIES.....	18
14.3.2 REQUIREMENTS.....	19
14.3.3 FIRST THREE PAGES.....	19
14.3.4 TABLE OF CONTENTS	25
15. DATA SHEETS.....	26
16. FORMS	34

REVISION CONTROL LOG
FOR OVSC LABORATORY
TEST PROCEDURES

TP118-04
POWER-OPERATED WINDOW, PARTITION, AND ROOF PANEL
SYSTEMS

TEST PROCEDURE		FMVSS 118		DESCRIPTION
REV. No.	DATE	AMENDMENT	EFFECTIVE DATE	
00	Dec. 15, 1978	----	----	Original Issue
01	Mar. 24, 1983	----	----	Added Door Option
02	Feb. 8, 1989	----	----	Added Light Trucks and "Close"
03	April 8, 1994	58FR16782 3/31/93	4/30/93 *	Final Rule – Response to Petitions for Reversal Requirements
04	Sept. 15, 2004	69FR55517 9/15/04	11/15/04	Final Rule – Actuation Device Operation and Test Requirements Added
05				
06				

* Vehicles manufactured before 10/1/2008 need not meet the new requirements of paragraph S6.

1. PURPOSE AND APPLICATION

The Office of Vehicle Safety Compliance (OVSC) provides contractor laboratories with Laboratory Test Procedures as guidelines for obtaining compliance test data. The data are used to determine if a specific vehicle or item of motor vehicle equipment meets the minimum performance requirements of the subject Federal Motor Vehicle Safety Standard (FMVSS). The purpose of the OVSC Laboratory Test Procedures is to present a uniform testing and data recording format, and provide suggestions for the use of specific equipment and procedures. These Laboratory Test Procedures do not constitute an endorsement or recommendation for use of any product or method. If any contractor views any part of an OVSC Laboratory Test Procedure to be in conflict with a FMVSS or observes deficiencies in a Laboratory Test Procedure, the contractor is required to advise the Contracting Officer's Technical Representative (COTR) and resolve the discrepancy prior to the start of compliance testing.

The OVSC Laboratory Test Procedures are not intended to limit or restrain a contractor from developing or utilizing any testing techniques or equipment which will assist in procuring the required compliance test data. However, the application of any such testing technique or equipment is subject to prior approval of the COTR.

NOTE: The OVSC Laboratory Test Procedures, prepared for the limited purpose of use by independent laboratories under contract to conduct compliance tests for the OVSC, are not rules, regulations or NHTSA interpretations regarding the meaning of a FMVSS. The Laboratory Test Procedures are not intended to limit the requirements of the applicable FMVSS(s). In some cases, the OVSC Laboratory Test Procedures do not include all of the various FMVSS minimum performance requirements. Recognizing applicable test tolerances, the Laboratory Test Procedures may specify test conditions that are less severe than the minimum requirements of the standard. In addition, the Laboratory Test Procedures may be modified by the OVSC at any time without notice, and the COTR may direct or authorize contractors to deviate from these procedures, as long as the tests are performed in a manner consistent with the standard itself and within the scope of the contract. Laboratory Test Procedures may not be relied upon to create any right or benefit in any person. Therefore, compliance of a vehicle or item of motor vehicle equipment is not necessarily guaranteed if the manufacturer limits its certification tests to those described in the OVSC Laboratory Test Procedures.

2. GENERAL REQUIREMENTS

FMVSS 118 requires manufacturers of passenger cars, multipurpose passenger vehicles and trucks with a gross vehicle weight rating (GVWR) of 4,536 kg (10,000 lb) or LESS to install power window, partition and roof panel systems which meet the requirements as specified below in order to minimize the likelihood of death or injury from accidental operation.

Power window, partition and roof panel systems may be **CLOSED** only in the following circumstances:

- A. When the key that controls activation of the vehicle's engine is in the "ON", "START", or "ACCESSORY" position;
- B. By muscular force unassisted by a vehicle supplied power;
- C. Upon continuous activation by a locking system on the exterior of the vehicle;
- D. Upon continuous activation of a remote actuation device, provided that the remote actuation device shall be incapable of closing the power window, partition or roof panel from a distance of more than 6 meters from the vehicle;
- E. During the interval between the time the locking device which controls the activation of the vehicle's engine is turned off and the opening of either of a two-door vehicle's doors or, in the case of a vehicle with more than two doors, the opening of either of its front doors;
- F. If the window, partition, or roof panel is in a static position before starting to close and in that position creates an opening so small that a 4 mm diameter semi-rigid cylindrical rod cannot be placed through the opening at any location around its edge; or
- G. Upon continuous activation of a remote actuation device, provided that the remote actuation device shall be incapable of closing the power window, partition or roof panel if the device and the vehicle are separated by an opaque surface and provided that the remote actuation device shall be incapable of closing the power window, partition or roof panel from a distance of more than 11 meters from the vehicle.

Power window, partition and roof panel systems may **NOT BEGIN TO CLOSE** in the following circumstance:

- H. When any part of a smooth, rigid spherical surface of a hemisphere with a radius of 20 mm is in contact with any power-operated window, partition,

2. GENERAL REQUIREMENTS....Continued

or roof panel actuation device mounted in the occupant compartment, and a force not to exceed 135 Newtons (30 lb) is applied. **(Vehicles manufactured before 10/1/2008 need not meet this requirement.)**

Power window, partition and roof panel systems that **DO NOT MEET** all of the above closing constraint requirements shall:

- I. Be equipped with a reversal system which can reverse direction before contacting, or before exerting a squeezing force of 100 Newtons or more on, a semi-rigid circular cylindrical rod from 4 mm to 200 mm in diameter that is placed through the window, partition or roof panel system opening at any location.
 - (1) Upon such reversal, the window, partition or roof panel system must open to one of the following positions, at the manufacturer's option:
 - (A) A position that is at least as open as the position at the time closing was initiated;
 - (B) A position that is not less than 125 millimeters more open than the position at the time the window reversed direction; or
 - (C) A position that permits a semi-rigid cylindrical rod that is 200 mm in diameter to be placed through the opening.
 - (2) The test rod is placed through the window, partition or roof panel opening from the inside of the vehicle such that the cylindrical surface of the rod contacts any part of the structure with which the window, partition or roof panel mates.
 - (3) The force-deflection ratio of the test rod is at least 65 N/mm for a rod 25 mm or smaller in diameter, and at least 20 N/mm for a rod larger than 25 mm in diameter.

3. SECURITY

The contractor shall provide appropriate security measures to protect the OVSC test vehicles and parts during the entire compliance testing program. The contractor is also financially responsible for any acts of theft and/or vandalism which occur during the storage of test vehicles. Security problems which arise shall be reported by telephone to the COTR and the Industrial Property Manager (IPM), Office of Contracts and Procurement (OCP), within 2 working days after the incident. A letter containing specific details of the security problem shall be sent to the IPM (with copy to the COTR) within 4 working days. The contractor shall protect and segregate all photographs and data that evolve from compliance testing. No information concerning the vehicle safety compliance testing program shall be released to anyone except the COTR, unless specifically authorized by the COTR or the COTR's Branch or Division Chief.

NO INDIVIDUALS, OTHER THAN CONTRACTOR PERSONNEL DIRECTLY INVOLVED IN THE COMPLIANCE TESTING PROGRAM, SHALL BE ALLOWED TO WITNESS ANY VEHICLE COMPLIANCE TEST UNLESS SPECIFICALLY AUTHORIZED BY THE COTR.

4. GOOD HOUSEKEEPING

Contractors shall maintain the entire vehicle compliance testing area, test fixtures and instrumentation in a neat, clean and painted condition with test instruments arranged in an orderly manner consistent with good test laboratory housekeeping practices.

5. TEST SCHEDULING AND MONITORING

The contractor shall submit a test schedule to the COTR prior to testing. Tests shall be completed as required in the contract. Scheduling shall be adjusted to permit sample motor vehicles to be tested to other FMVSS as may be required by the OVSC. All testing shall be coordinated to allow monitoring by the FMVSS No. 118 COTR.

6. TEST DATA DISPOSITION

The contractor shall make all vehicle preliminary compliance test data available to the COTR on location within 4 hours after the test. Final test data shall be furnished to the COTR within 5 working days. Additionally, the contractor shall analyze the preliminary test results as directed by the COTR. All backup data sheets, technical notes, etc., shall be either sent to the COTR or destroyed at the conclusion of each delivery order, purchase order, etc.

7. GOVERNMENT FURNISHED PROPERTY (GFP)

ACCEPTANCE OF TEST VEHICLES

The Contractor has the responsibility of accepting each test vehicle whether delivered by a new vehicle dealership or another vehicle transporter. In both instances, the contractor acts in the OVSC's behalf when signing an acceptance of the test vehicle delivery. When a vehicle is delivered, the contractor must check to verify the following:

- A. All options listed on the "window sticker" are present,
- B. Tires and wheels are new and the same as listed,
- C. There are no dents or other interior or exterior flaws,
- D. The vehicle has been properly prepared and is in running condition,
- E. Owner's manual, warranty document, consumer information, and extra set of keys are present, and
- F. Proper fuel filler cap is supplied on the vehicle.

A Vehicle Condition form will be supplied to the contractor when the test vehicle is transferred from a new vehicle dealership or between test contracts. The contractor must complete a Vehicle Condition form for each vehicle and deliver it to the COTR with the Final Test Report or the report will not be accepted for payment.

NOTIFICATION OF COTR

The COTR must be notified within 24 hours after a vehicle has been delivered. In addition, if any discrepancies or damage is found at the time of delivery, a copy of the Vehicle Condition form shall be sent to the COTR immediately.

8. CALIBRATION OF TEST INSTRUMENTS

Before the contractor initiates the safety compliance test program, a test instrumentation calibration system will be implemented and maintained in accordance with established calibration practices. The calibration system shall be set up and maintained as follows:

- A. Standards for calibrating the measuring and test equipment will be stored and used under appropriate environmental conditions to assure their accuracy and stability.
- B. All measuring instruments and standards shall be calibrated by the contractor, or a commercial facility, against a higher order standard at periodic intervals NOT TO EXCEED TWELVE (12) MONTHS! Records, showing the calibration traceability to the National Institute of Standards and Technology (NIST), shall be maintained for all measuring and test equipment.
- C. All measuring and test equipment and measuring standards will be labeled with the following information:
 - (1) Date of calibration
 - (2) Date of next scheduled calibration
 - (3) Name of the technician who calibrated the equipment
- D. A written calibration procedure shall be provided by the contractor which includes as a minimum the following information for all measurement and test equipment:
 - (1) Type of equipment, manufacturer, model number, etc.
 - (2) Measurement range
 - (3) Accuracy
 - (4) Calibration interval
 - (5) Type of standard used to calibrate the equipment (calibration traceability of the standard must be evident)
- E. Records of calibration for all test instrumentation shall be kept by the contractor in a manner which assures the maintenance of established calibration schedules. All such records shall be readily available for inspection when requested by the COTR. The calibration system will need the acceptance of the COTR before the test program commences.

Further guidance is provided in the International Standard ISO 10012-1, "Quality Assurance Requirements for Measuring Equipment" and American National Standard ANSI/NC SL Z540-1, "Calibration Laboratories and Measuring and Test Equipment - General Requirements".

9. PHOTOGRAPHIC DOCUMENTATION

Photographs for test reports shall be 8 x 10 inches, and clearly illustrate the intended features. A tag, label, or placard identifying the test vehicle model and NHTSA number shall appear in each photograph and be legible. Each photograph shall be labeled as to subject matter and actuation device. Photographs shall properly identify device location. As a minimum, the following photographs shall be included, as applicable:

- A. 3/4 frontal view from right side of vehicle
- B. 3/4 rear view from left side of vehicle
- C. Close-up view of vehicle's certification label
- D. Close-up view of vehicle's tire information placard
- E. Close-up view of vehicle's interior locking system
- F. Close-up view of each unique power window, partition, and roof panel actuation device
- G. Close-up view of power window master control panel
- H. Close-up view of remote control device
- I. Close-up view of remote control receiver(s)
- J. Photos of test instrumentation used in conducting this test (may be a composite photograph with instrumentation removed from vehicle)
- K. Test instrumentation installed on vehicle
- L. Close-up of all test failure areas and components

10. DEFINITIONS

Power Operated Roof Panel Systems - Moveable panels in the vehicle roof which close by vehicle supplied power either by a sliding or hinged motion, and do not include convertible top systems.

Interior Locking System – The locking device located in the occupant compartment that controls the actuation of the vehicle's engine.

Actuation Device – A switch, device, controller or other component that controls the power window, partition or roof panel.

WPRP - Window, Partition, and Roof Panel

11. PRETEST REQUIREMENTS

IN-HOUSE COMPLIANCE TEST PROCEDURE

Prior to conducting any compliance tests, contractors are required to submit a detailed in-house compliance test procedure and equipment list to the COTR that includes a step-by-step description of the methodology to be used and a detailed check-off list. Written approval must be obtained from the COTR before commencing testing so that all parties are in agreement. There shall be no contradiction between the OVSC Laboratory Test Procedure and the contractor's in-house test procedure. The list of test equipment shall include instrument make, model, range, resolution and accuracy.

TEST DATA LOSS

A compliance test is not to be conducted unless all of the various test conditions specified in the applicable OVSC Laboratory Test Procedure have been met. Failure of a contractor to obtain the required test data and to maintain acceptable limits on test parameters in the manner outlined in the applicable OVSC Laboratory Test Procedure may require a retest at the expense of the contractor. The retest costs will include all costs associated with conducting the retest.

The Contracting Officer of NHTSA is the only NHTSA official authorized to notify the contractor that a retest is required. The retest shall be completed within two (2) weeks after receipt of notification by the Contracting Officer that a retest is required. If a retest is conducted, no test report is required for the original test.

SUGGESTED TEST EQUIPMENT

- A. 5 mm, 100 mm and 200 mm diameter load cell test rod assemblies, or equivalent, to measure window, partition, and roof panel closing force. 150 Newton range with accuracy of ± 1.5 Newtons at 75 Newtons,

11. PRETEST REQUIREMENTS....Continued

maximum non-linearity of ± 3 Newtons over the range, and a visual output resolution of 1.5 Newtons. The load cell test rod assembly force deflection ratio is at least 65 Newton/mm for the 5 mm diameter rod, and at least 20 Newton/mm for the 100 mm and 200 mm diameter rods.

- B. Position transducer or equivalent to measure window, partition, or roof panel opening distance, 300 mm range with accuracy of ± 1 mm in 100 mm, and visual output resolution of .01 mm.
- C. Continuous recorder to provide permanent, supplemental records of window, partition, and roof panel force, distance and speed versus time. When electrical input signals to the recorder are simulated, the accuracy of that instrument's recorded data must be verified by at least one physical check, with the entire instrument system connected.
- D. A hemisphere shaped solid and force gauge assembly for contacting window, partition and roof panel actuation devices. The hemisphere shaped solid shall have a smooth, rigid spherical surface and a radius of $20 \text{ mm} \pm 1 \text{ mm}$. The force gauge shall be attached to the geometric center of, and perpendicular to, the flat side of the hemisphere. The force gauge shall have a range of 200 Newtons, a resolution of 1 Newton and an accuracy of $\pm 0.5\%$ of full scale.

TEST AREA

A clean, dry, level surface for parking during the test is required.

VEHICLE IDENTIFICATION AND PRE-OPERATIONAL CHECK

Each vehicle shall be visually inspected to identify all power windows, partitions and roof panels (WPRP) and corresponding actuation devices. A pre-operational check shall also be conducted to ensure each WPRP appears to operate in accordance with manufacturer's specifications outlined in the Vehicle Owner's Manual. Record data on the WPRP Pre-Operational Check sheet.

- A. Thoroughly review contents of vehicle owner's manual or equivalent documentation paying particular attention to sections discussing internal and external locking devices, remote control devices, WPRP system operational capabilities, and occupant compartment actuation devices.
- B. Identify all vehicle installed power WPRPs. (If necessary, modify the list of vehicle installed power WPRPs on the pre-operational check sheet and applicable data sheets.)

11. PRETEST REQUIREMENTS....Continued

- C. Identify all interior individual and master control actuation devices.
- D. Identify WPRPs operable by a remote control actuation device, and/or exterior locking system.
- E. Identify WPRPs equipped with a reversing capability.
- F. Describe locations of the master control panel and exterior locking system.
- G. Identify remote control type (Line-of-Site or Non Line-of-Site) and WPRP actuation device design (toggle, rocker, push/pull (lever), or other).
- H. Identify all interior locking system key positions.
- I. Turn the interior locking system to the "ON" position. Using the master control and individual actuation devices, operate each WPRP through 1 complete open-close cycle.

NOTE: One open-close cycle consists of starting with the WPRP in the fully closed position, moving the WPRP to fully open and back to fully closed.

- J. Turn the interior locking system to the "Accessory" position. Using the master control and individual actuation devices, operate each WPRP through 1 complete open-close cycle.

The testing laboratory will contact the COTR to resolve any matters of WPRPs failing to operate properly before proceeding with further testing of the vehicle.

12. COMPLIANCE TEST EXECUTION

NOTE: IF A VEHICLE DOES NOT MEET THE REQUIREMENTS OF PARTS 12.1 – 12.4, IT MUST MEET THE REVERSAL REQUIREMENTS OF PART 12.5 TO MEET THE REQUIREMENTS OF THE STANDARD. VEHICLES MANUFACTURED BEFORE 10/1/2008 NEED NOT MEET THE REQUIREMENTS OF PART 12.4.

12.1 Interior Locking System Test (S4(e)).

Power operated WPRP systems may be closed during the interval between the time the locking device which controls the activation of the vehicle's engine is turned off and the opening of either of a two-door vehicle's doors or, in the case of a vehicle with more than two doors, the opening of either of its front doors.

A. Locking System in "LOCK" and other off positions [Data Sheet 1]

- (1) Close all doors and turn locking system to the "ON" position. Open all WPRPs and then turn the locking system to the "LOCK" position. Attempt to close each WPRP using the master and individual actuation devices. Record the results indicating whether the master and individual actuation devices are operable for **Doors Closed**. For any actuation device checked as inoperable in this section record a pass in the adjacent data sheet column. If any actuation device is checked as operable, re-open the respective WPRP and continue testing that particular device to the door open option test procedure in paragraph (2) of this section.
- (2) Open the left front door. Attempt to close each WPRP using the master and the individual actuation devices. Record the results indicating whether the master and individual actuation devices are operable under **Left Door Open**. **Repeat the above test (paragraphs (1) and (2)) with the right front door open and the left front door closed.** Record a pass if checked inoperable; and a fail if checked operable.
- (3) Repeat steps (1) and (2) above for any other locking system positions excluding "ON", "ACCESSORY", or "START." For each additional locking system position tested a separate data sheet shall be completed.
- (4) Repeat steps (1) through (3) starting with the locking system in the "ACCESSORY" position. Skip this step if the WPRPs are not operable with the locking system in the "ACCESSORY" position.

12. COMPLIANCE TEST EXECUTION....Continued

B. Locking System With The Key Removed [Data Sheet 2]

- (1) Close all doors, turn locking system to the "ON" position, and open all WPRPs. Remove the key from the locking system and attempt to close each WPRP using the master and individual actuation devices. Record the results indicating whether the master and individual actuation devices are operable. For any device checked as inoperable, record a pass in the adjacent data sheet column. If any actuation device is checked as operable, re-open the respective WPRP and continue testing that particular device to the door open test procedure in paragraph (2) of this section.
- (2) Open the left front door. Attempt to close each WPRP using the master and the individual actuation devices. Record the results indicating whether the master and individual actuation devices are operable under **Left Door Open. Repeat the above test (paragraphs (1) and (2)) with the right front door open.** Record a pass if checked inoperable and a fail if checked operable.
- (3) Repeat steps (1) and (2) starting with the locking system in the "ACCESSORY" position. Skip this step if the WPRPs are not operable with the locking system in the "ACCESSORY" position.

12.2 Exterior Locking System Test (S4(c))

Power operated WPRP systems may be closed upon continuous activation by a locking system on the exterior of the vehicle. Record data in Data Sheet 3.

- A. Identify whether or not the vehicle is equipped with an external locking system that can close any WPRP. If the vehicle is not equipped with this capability skip to section 12.3 of this procedure.
- B. Describe the location of the locking system and how the system is activated.
- C. Remove key from interior locking system.
- D. Activate the exterior locking system and identify location of operable WPRPs. Determine whether continuous activation of the locking system is required until all operable WPRPs are completely closed. For each operable WPRP record a pass or fail.

12.3 Remote Actuation Device Test (S4(d) and (g))

Power operated WPRP systems may be closed upon continuous activation of a remote actuation device provided that the device be incapable of closing any

12. COMPLIANCE TEST EXECUTION....Continued

WPRP from a non line-of-site distance of more than 6 meters, or a line-of-site distance of more than 11meters from the vehicle. Record data in Data Sheet 4.

- A. Identify whether or not the vehicle is equipped with a remote actuation device that can close any WPRP. If the vehicle is not equipped with this capability skip to section 12.4 of this procedure.
- B. Identify type of remote actuation device installed on vehicle. Separate the remote actuation device and the vehicle mounted receiver by an opaque surface and attempt to activate the system. If the system does not function, the vehicle is equipped with a "line-of-site" remote actuation device, proceed to paragraph D below, otherwise, the vehicle is equipped with a "non line-of-site" remote actuation device, proceed to paragraph C below.
- C. Non Line-of-Site
Determine the maximum operating distance of the remote actuation device. The range of operation shall not exceed six meters in any direction and continuous activation of the remote actuation device is required until all operable WPRPs are completely closed. If the system operates as required record a pass, otherwise indicate a fail
- D. Line-of-Sight
Determine the maximum operating distance of the remote actuation device. The range of operation shall not exceed eleven meters in any direction and continuous activation of the remote actuation device is required until all operable WPRPs are completely closed. If the system operates as required record a pass, otherwise indicate a fail

12.4 Occupant Compartment Actuation Device Test (S6)

Any actuation device that is mounted in the occupant compartment of a vehicle and can be used to close a power-operated WPRP shall not cause such WPRP to begin closing from any open position when contacted by the spherical surface of a 20mm radius hemisphere and tested as specified below. This requirement does not apply to actuation devices that are mounted in a vehicle's roof, headliner, or overhead console and that can close a WPRP only by continuous rather than momentary switch actuation or actuation devices that comply with the reversing requirements of FMVSS 118, S5. Record data in Data Sheet 5.

- A. Close all doors and turn locking system to the "ON" position. Ensure power to each WPRP, leaving each WPRP in its fully open position.
- B. Identify each actuation device that shall be tested to this requirement.

12. COMPLIANCE TEST EXECUTION....Continued

- C. Using the hemisphere shaped solid and force gauge assembly, attempt to close each WPRP by contacting each master control panel actuation device and individual actuation device with the spherical side of the hemisphere. Apply a force of 134 Newtons to the geometric center of, and perpendicular to, the flat side of the hemisphere. While the force level is being applied, the plane of the flat face of the hemisphere may be at any angle. For actuation devices that cannot be contacted by the hemisphere prior to application of the force, apply a force not to exceed 134 Newtons at any angle in an attempt to make contact with the actuation device. The hemisphere shall be directionally applied in such a manner that, if unimpeded, it would make contact with the actuation device.
- D. Repeat the test sequence with each WPRP in an intermediate open position where a 5 mm diameter or larger test rod can be placed through the opening around its edge.
- E. Record the results indicating whether any applicable master or individual actuation device is capable of closing any window, partition or roof panel when subjected to the applied force. For any actuation device that did not cause the WPRP to begin closing record a pass, otherwise record a fail in the adjacent column on the data sheet.

12.5 Reversal Capability Test (S5)

A power operated WPRP system may close under any operational condition if the system reverses direction before contacting or exerting a squeezing force of 100 Newtons or more on, a semi-rigid cylindrical rod 4mm to 200mm in diameter placed through the WPRP opening at any location. Record results in Data Sheet 6.

NOTE: WPRPs that do not meet the requirements as tested above in paragraphs 12.1 – 12.4 shall meet the reversing requirements of paragraph 12.5 to meet the safety standard requirements of FMVSS 118.

- A. Identify if the vehicle is equipped with a reversing capability and if so, type of reversing system. If the vehicle is not equipped with this capability do not conduct the reversal capability test.
- B. Identify the power operated WPRPs that are equipped with a reversal capability and those that must meet the reversal standard requirements.
- C. Close all doors and turn locking system to the "ON" position. Ensure power to each front door power operated window, leaving each in a half open position.

12. COMPLIANCE TEST EXECUTION....Continued

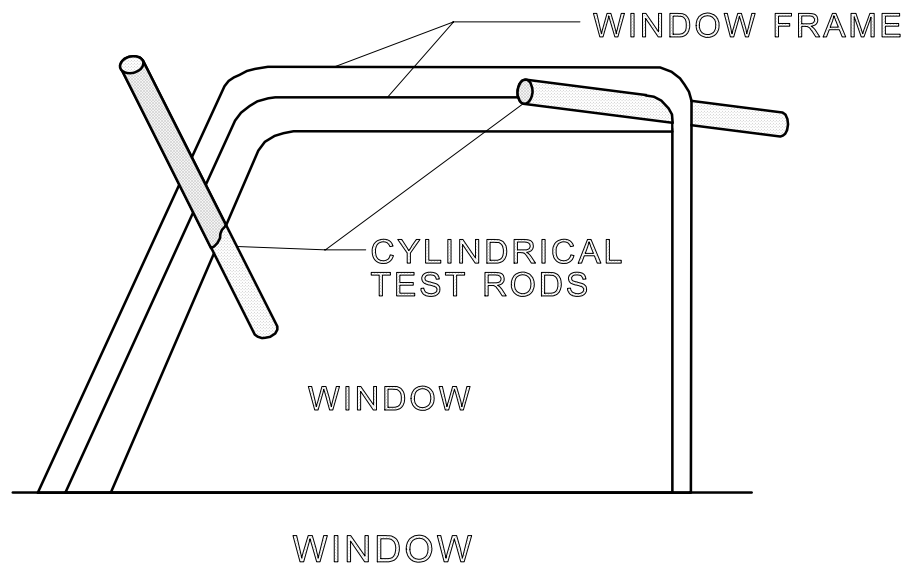
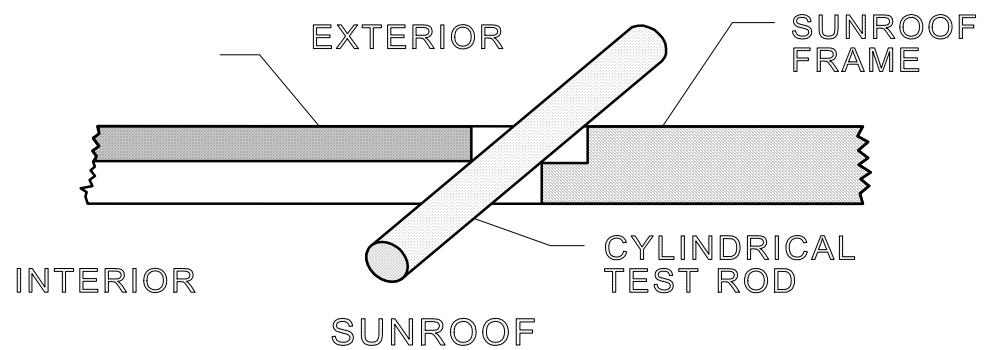
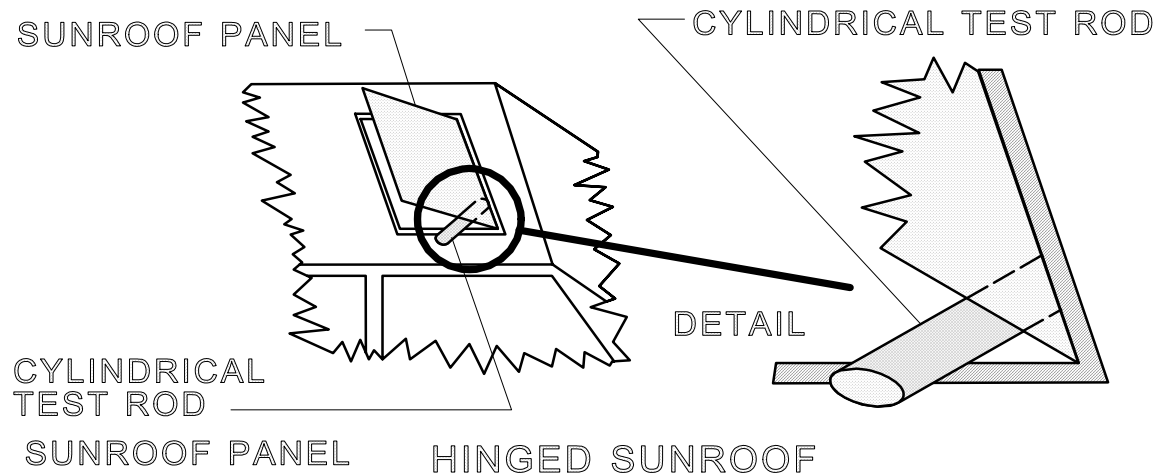
- D. On one of the front door power operated windows, place a temporary reference mark on the glass and the window frame for measuring reversal distance relative to original opening dimension. Record window open dimension.
- E. On the same window, place a 5mm diameter load cell test rod assembly at the front edge of the window as shown in the figure below. Rod must be placed through the window from inside the vehicle.
- F. Utilizing any applicable actuation device, close the window onto the test rod and measure the squeeze force applied before the system reverses direction.
- G. After the window reverses and comes to a stop, measure the distance it has reversed from the point of contact with the test rod and the open dimension in relation to the original open dimension measurement.
- H. Using the same power window, repeat above test sequence with 100mm and 200mm diameter test rods.
- I. With the vehicle doors still closed, turn locking system to the "OFF" or "LOCK" position. Again, ensure power to each front door power window, leaving each window in its half open position. Repeat steps D. through H. utilizing the opposite front door power window and the test rod placed at the top edge of the window or any other location, different than used above on the opposite window, such that the cylindrical surface of the test rod contacts any part of the structure with which the window mates. Describe this location on the data sheet. Rod must be placed through the window from inside the vehicle.
- J. Repeat steps C. through I. for rear door or rear quarter panel (if applicable) power windows with a reversing capability.
- K. Repeat steps C. through H. with the three test rods placed each at a different edge position around the power operated partition(s).
- L. Repeat step K. above with the locking system in the "OFF" or "LOCK" position.
- M. Repeat steps C. through H. with the three test rods placed each at a different edge position on the front and side edges of the power operated roof panel(s).

12. COMPLIANCE TEST EXECUTION....Continued

- N. Repeat step M. above with the locking system in the “OFF” or “LOCK” position.
- O. For each WPRP tested identify a pass or fail in the data sheet in the adjacent column. The squeezing force exerted cannot exceed 100 Newtons and the applicable window, partition or roof panel shall have reversed to one of the positions specified below:
 - (1) A position that is at least as open as the position at the time closing was initiated;
 - (2) A position that is not less than 125 millimeters more open than the position at the time the window reversed direction;
or
 - (3) A position that permits a semi-rigid cylindrical rod that is 200 mm in diameter to be placed through the opening.

12. COMPLIANCE TEST EXECUTION....Continued

TYPICAL CYLINDRICAL TEST RODS PROTRUDING THROUGH SUNROOF AND WINDOW DAYLIGHT OPENINGS



13. POST TEST REQUIREMENTS

Move test vehicles to secure area.

14. REPORTS

14.1 MONTHLY STATUS REPORTS

The contractor shall submit a monthly Test Status Report and a Vehicle Status Report to the FMVSS 118 COTR. The Vehicle Status report shall be submitted until all FMVSS 118 vehicles are transferred to another FMVSS or otherwise disposed of. Samples of the required reports are found in the report forms section.

14.2 APPARENT TEST FAILURE

Any indication of an test failure shall be communicated by telephone or to the COTR within 24 hours with written notification mailed within 48 hours (Saturday and Sunday hours excluded). A Notice of Test Failure (see report forms section) with a copy of the particular compliance test data sheet(s) and preliminary data plot(s) shall be included.

If possible, repeat that portion of the test where the failure was noted to ensure that there is a test failure.

In the event of a test failure, a post test calibration check of some critically sensitive test equipment and instrumentation (if applicable) may be required for verification of accuracy. The necessity for the calibration shall be at the COTR's discretion and shall be performed without additional costs to the OVSC.

14.3 FINAL TEST REPORTS

14.3.1 COPIES

In the case of an apparent test failure, 7 copies of the Final Test Report shall be submitted to the COTR for acceptance within 3 weeks of test completion.

Where there has been no indication of an apparent noncompliance, 3 copies of each Final Test Report shall be submitted to the COTR for acceptance within 3 weeks of test completion. No payment of contractor's invoices for conducting compliance tests will be made prior to the Final Test Report acceptance by the COTR. Contractors are requested to NOT submit invoices before the COTR is provided with copies of the Final Test Report.

14. REPORTS....Continued

Contractors are required to submit the first Final Test Report in draft form within 1 week after the compliance test is conducted. The contractor and the COTR will then be able to discuss the details of both test conduct and report content early in the compliance test program.

Contractors are required to **PROOF READ** all Final Test Reports before submittal to the COTR. The OVSC will not act as a report quality control office for contractors. Reports containing a significant number of errors will be returned to the contractor for correction, and a "hold" will be placed on invoice payment for the particular test.

14.3.2 REQUIREMENTS

The Final Test Report, associated documentation (including photographs), are relied upon as the chronicle of the compliance test. The Final Test Report will be released to the public domain after review and acceptance by the COTR. For these reasons, each final report must be a complete document capable of standing by itself.

The contractor should use **detailed** descriptions of all compliance test events. Any events that are not directly associated with the standard but are of technical interest should also be included. The contractor should include as much **detail** as possible in the report.

Instructions for the preparation of the first three pages of the final test report are provided for standardization.

14.3.3 FIRST THREE PAGES

A. FRONT COVER

A heavy paperback cover (or transparency) shall be provided for the protection of the final report. The information required on the cover is as follows:

- (1) Final Report Number such as 118-ABC-9X-001 where
 - 118 is the FMVSS tested
 - ABC are the initials for the laboratory
 - 0X is the Fiscal Year of the test program
 - 001 is the Group Number (001 for the 1st test, 002 for the 2nd test, etc.)

14. REPORTS....Continued

- (2) Final Report Title And Subtitle such as

COMPLIANCE TESTING FOR FMVSS 118
Power-Operated Window, Partition and Roof Panel Systems

XYZ Motor Co.
200X Deluxe 4-door sedan
NHTSA No. CX0101

- (3) Contractor's Name and Address such as

COMPLIANCE TESTING LABORATORIES, INC.
4335 West Dearborn Street
Detroit, Michigan 48090

NOTE: DOT SYMBOL WILL BE PLACED BETWEEN ITEMS (3) AND (4)

- (4) Date of Final Report completion

- (5) The words **"FINAL REPORT"**

- (6) The sponsoring agency's name and address as follows

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6115 (NVS-220)
Washington, DC 20590

14. REPORTS.....Continued**B. FIRST PAGE AFTER FRONT COVER**

A disclaimer statement and an acceptance signature block for the COTR shall be provided as follows:

This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By:

Approved By:

Approval Date:

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By:

Acceptance Date:

14. REPORTS....Continued

- C. SECOND PAGE AFTER FRONT COVER
A completed Technical Report Documentation Page (Form DOT F1700.7) shall be completed for those items that are applicable with the other spaces left blank. Sample data for the applicable block numbers of the title page follows.

Block 1 — REPORT NUMBER

118-ABC-0X-001

Block 2 — GOVERNMENT ACCESSION NUMBER

Leave blank

Block 3 — RECIPIENT'S CATALOG NUMBER

Leave blank

Block 4 — TITLE AND SUBTITLE

Final Report of FMVSS 118 Compliance Testing of 200X XYZ
Deluxe 4-door sedan, NHTSA No. CX0101

Block 5 — REPORT DATE

March 1, 200X

Block 6 — PERFORMING ORGANIZATION CODE

ABC

Block 7 — AUTHOR(S)

John Smith, Project Manager / Bill Doe, Project Engineer

Block 8 — PERFORMING ORGANIZATION REPORT NUMBER

ABC-DOT-XXX-001

Block 9 — PERFORMING ORGANIZATION NAME AND ADDRESS

ABC Laboratories
405 Main Street
Detroit, MI 48070

14. REPORTS....Continued**Block 10 — WORK UNIT NUMBER**

Leave blank

Block 11 — CONTRACT OR GRANT NUMBER

DTNH22-9X-D-12345

Block 12 — SPONSORING AGENCY NAME AND ADDRESS

US Department of Transportation
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
400 Seventh Street, SW, Room 6115 (NVS-220)
Washington, DC 20590

Block 13 — TYPE OF REPORT AND PERIOD COVERED

Final Test Report
Feb. 15 to Mar. 15, 200X

Block 14 — SPONSORING AGENCY CODE

NVS-220

Block 15 — SUPPLEMENTARY NOTES

Leave blank

Block 16 — ABSTRACT

Compliance tests were conducted on the subject 200X XYZ Deluxe 4-door sedan in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-118-0X for the determination of FMVSS 118 compliance.

Test failures identified were as follows:

None

NOTE: Above wording must be shown with appropriate changes made for a particular compliance test. Any questions should be resolved with the COTR.

14. REPORTS....Continued**Block 17 — KEY WORDS**

Compliance Testing
Safety Engineering
FMVSS 118

Block 18 — DISTRIBUTION STATEMENT

Copies of this report are available from —

NHTSA Technical Information Services (TIS)
Room 2336 (NPO-405)
400 Seventh St., SW
Washington, DC 20590
Telephone No.: 202-366-4947

Block 19 — SECURITY CLASSIFICATION OF REPORT

Unclassified

Block 20 — SECURITY CLASSIFICATION OF PAGE

Unclassified

Block 21 — NUMBER OF PAGES

Add appropriate number

Block 22 — PRICE

Leave blank

14. REPORTS....Continued

14.3.4 TABLE OF CONTENTS

Final test report Table of Contents shall include the following:

- A. Section 1 — Purpose of Compliance Test
- B. Section 2 — Test Procedure and Discussion of Results
- C. Section 3 — Test Data
- D. Section 4 — Test Equipment List and Calibration Information
- E. Section 5 — Photographs
- F. Section 6 — Copy of Test Vehicle Owner's Manual or other document
- G. Section 7 — Notice of Test Failure (if applicable)

15. DATA SHEETS

**FMVSS 118
COMPLIANCE DATA SUMMARY SHEET**

VEHICLE MAKE/MODEL/BODY STYLE: _____

VEHICLE NHTSA NO.: _____ VIN: _____

VEHICLE TYPE: _____ DATE OF MANUFACTURE: _____

LABORATORY: _____ TEST DATE: _____

REQUIREMENT	PASS	FAIL	NOT APPLICABLE
Interior Locking System in Off Position(s)			
Interior Locking System With Key Removed			
Exterior Locking System			
Remote Actuation Device			
Occupant Compartment Actuation Devices			
System Reversal Capability			

REMARKS:

15. DATA SHEETS....Continued**WPRP PRE-OPERATIONAL CHECK**

VEHICLE MAKE/MODEL/BODY STYLE: _____

VEHICLE NHTSA NO.: _____ VIN: _____

LABORATORY: _____ TEST DATE: _____

Identify power-operated WPRP and WPRP actuation devices.

	LEFT FRONT	LEFT REAR	RIGHT FRONT	RIGHT REAR	TAIL GATE	PARTITION	ROOF PANEL
Power WPRP Installed							
Individual Interior Actuation Devices							
Master Control Panel Actuation Devices							
WPRP Operated by Exterior Locking System							
WPRP Operated by Remote Control							
WPRP with Auto-Reverse Capability							

Master Control Panel Location: _____

Exterior Locking System Location: _____

Remote Control Type: () Line-of-Sight () Non-line of Sight:

WPRP Actuation Device Design [Toggle, Rocker, Push/Pull (Lever), or describe other]:

Master Control Panel _____

Individual Window _____

Roof Panel _____

Partition _____

Interior Locking System Key Positions (clockwise): _____

All WPRP open/close cycles are satisfactory with key in "ON" position:

() YES () NO If NO, compliance test shall not proceed.

All WPRP open/close cycles are satisfactory with key in "ACCESSORY" position:

() YES () Not Applicable - No power to WPRPs

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 1 INTERIOR LOCKING SYSTEM TEST

VEHICLE MAKE/MODEL/BODY STYLE: _____

VEHICLE NHTSA NO.: _____ VIN: _____

LABORATORY: _____ TEST DATE: _____

Key lock position at start of test execution. () ON () ACCESSORY

Key lock off position during test execution. () LOCK () OFF () OTHER

ACTUATION DEVICES	DOORS CLOSED		LEFT DOOR OPEN		RIGHT DOOR OPEN		PASS/ FAIL
	INOP.	OPER.	INOP.	OPER.	INOP.	OPER.	
MASTER CONTROL PANEL ACTUATION DEVICES							
Left Front (LF)							
Right Front (RF)							
Left Rear (LR)							
Right Rear (RR)							
Tail Gate (TG)							
Partition (P)							
Roof Panel (RP)							
INDIVIDUAL ACTUATION DEVICES							
Left Front (LF)							
Right Front (RF)							
Left Rear (LR)							
Right Rear (RR)							
Tail Gate (TG)							
Partition (P)							
Roof Panel (RP)							

REMARKS:

 RECORDED BY: _____
 APPROVED BY: _____

DATE: _____

15. DATA SHEETS....Continued

DATA SHEET 2
INTERIOR LOCKING SYSTEM WITH KEY REMOVED TEST

VEHICLE MAKE/MODEL/BODY STYLE: _____

VEHICLE NHTSA NO.: _____ VIN: _____

LABORATORY: _____ TEST DATE: _____

Key lock position at start of test execution. () ON () ACCESSORY

ACTUATION DEVICES	DOORS CLOSED		LEFT DOOR OPEN		RIGHT DOOR OPEN		PASS/ FAIL
	INOP.	OPER.	INOP.	OPER.	INOP.	OPER.	
MASTER CONTROL PANEL ACTUATION DEVICES							
Left Front (LF)							
Right Front (RF)							
Left Rear (LR)							
Right Rear (RR)							
Tail Gate (TG)							
Partition (P)							
Roof Panel (RP)							
INDIVIDUAL ACTUATION DEVICES							
Left Front (LF)							
Right Front (RF)							
Left Rear (LR)							
Right Rear (RR)							
Tail Gate (TG)							
Partition (P)							
Roof Panel (RP)							

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 3 EXTERIOR LOCKING SYSTEM TEST

VEHICLE MAKE/MODEL/BODY STYLE: _____

VEHICLE NHTSA NO.: _____ VIN: _____

LABORATORY: _____ TEST DATE: _____

Is vehicle equipped with an exterior locking system that can close any of the power windows, partitions or roof panels? () YES () NO

Location of exterior locking system: _____

Describe how the exterior locking system is activated: _____

Identify the windows, partitions or roof panels that can be closed by the exterior locking system. Also, in each case, identify whether continuous activation of the locking system is required.

WINDOW, PARTITION AND ROOF PANEL IDENTIFICATION	EXTERIOR LOCKING SYSTEM		EXTERIOR LOCKING SYSTEM (PASS/FAIL)*
	OPERABLE (YES/NO)	CONTINUOUS ACTIVATION REQUIRED (YES/NO)	
LEFT FRONT (LF)			
RIGHT FRONT (RF)			
LEFT REAR (LR)			
RIGHT REAR (RR)			
PARTITION (P)			
ROOF PANEL (RP)			
TAIL GATE (TG)			

* **NOTE:** Continuous Activation of the locking system is required for each WPRP to pass the exterior locking system safety standard requirement.

REMARKS:

RECORDED BY: _____
APPROVED BY: _____

DATE: _____

15. DATA SHEETS....Continued

DATA SHEET 4 REMOTE ACTUATION DEVICE

VEHICLE MAKE/MODEL/BODY STYLE: _____

VEHICLE NHTSA NO.: _____ VIN: _____

LABORATORY: _____ TEST DATE: _____

Is vehicle equipped with a remote actuation device for closing the power windows, partitions or roof panels? ☐ YES ☐ NO

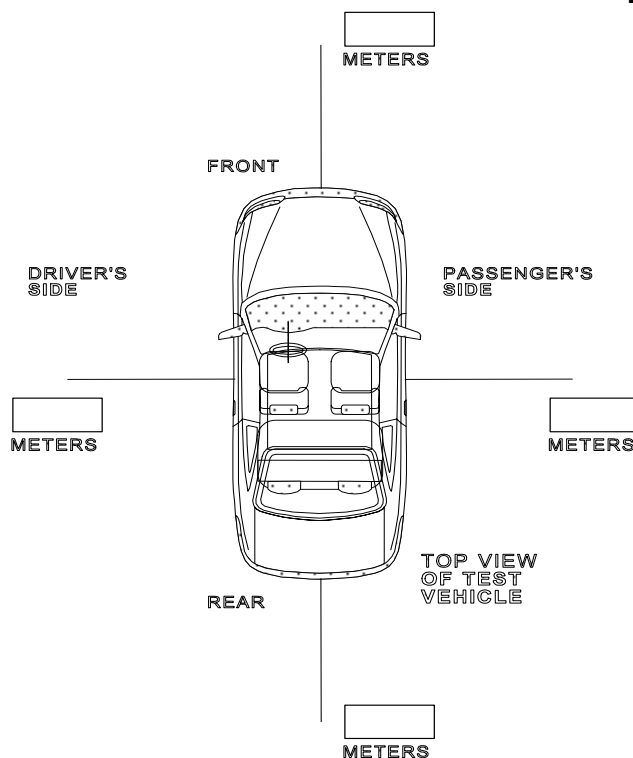
Type of remote actuation device installed on vehicle (check one):

☐ Non Line-of-Site ☐ Line-of-Site

Measured Range of Operation:

Record the maximum operating distance of the remote actuation device in the boxes below. The range of operation shall not exceed six meters for a **Non Line-of-Site Device** or eleven meters for a **Line-of-Site Device** in any measured direction and continuous activation of the remote actuation device is required until all operable windows, partitions or roof panels are completely closed.

PASS/FAIL _____



REMARKS:

RECORDED BY: _____
APPROVED BY: _____

DATE: _____

15. DATA SHEETS....Continued

DATA SHEET 5
OCCUPANT COMPARTMENT ACTUATION DEVICE TEST

VEHICLE MAKE/MODEL/BODY STYLE: _____

VEHICLE NHTSA NO.: _____ VIN: _____

LABORATORY: _____ TEST DATE: _____

ACTUATION DEVICE	ACTUATION DEVICE MUST BE TESTED TO THIS REQUIREMENT (YES/NO) *	HEMISPHERE ACTIVATED ACTUATION DEVICE CLOSES WPRP (YES/NO)	PASS/FAIL
MASTER CONTROL PANEL ACTUATION DEVICES			
Left Front (LF)			
Right Front (RF)			
Left Rear (LR)			
Right Rear (RR)			
Tail Gate (TG)			
Partition (P)			
Roof Panel (RP)			
INDIVIDUAL ACTUATION DEVICES			
Left Front (LF)			
Right Front (RF)			
Left Rear (LR)			
Right Rear (RR)			
Tail Gate (TG)			
Partition (P)			
Roof Panel (RP)			

* NOTE: This requirement does not apply to actuation devices that are mounted in a vehicle's roof, headliner, or overhead console and that can close a window, partition, or roof panel only by continuous rather than momentary switch actuation, or actuation devices that comply with the reversing requirements of FMVSS 118, S5.

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

15. DATA SHEETS....Continued

DATA SHEET 6
WPRP OBSTRUCTION REVERSAL CAPABILITY

VEHICLE MAKE/MODEL/BODY STYLE: _____

VEHICLE NHTSA NO.: _____ VIN: _____

LABORATORY: _____ TEST DATE: _____

Is vehicle equipped with a WPRP reversal capability? () YES () NO

Type of reversal system equipped on vehicle (check one): () Contact () Non Contact

WPRPs equipped with reversal capability: _____

WPRPs that must meet reversal requirements: _____

WINDOW, PARTITION, ROOF PANEL	TEST ROD PLACEMENT IN WINDOW, PARTITION OR ROOF PANEL	TEST ROD SIZE (mm)	WINDOW, PARTITION OR ROOF PANEL OPENING BEFORE/AFTER CLOSING (mm)	MAXIMUM FORCE MEASURED ON TEST ROD (NEWTONS)	WINDOW, PARTITION, OR ROOF PANEL REVERSING DISTANCE (mm)	PASS/FAIL *
			/			
			/			
			/			
			/			
			/			
			/			
			/			
			/			
			/			

* WPRP must reverse direction before contacting or exerting a squeezing force of 100 Newtons. Upon such reversal, the WPRP must open to one of the following positions.

- A. A position that is at least as open as the position at the time closing was initiated,
- B. A position that is not less than 125 mm more open than the position at the time the window reversed direction, or
- C. A position that permits a semi-rigid cylindrical rod that is 200 mm in diameter to be placed through the opening at the same contact point(s) used in 12.5.

REMARKS:

RECORDED BY: _____

DATE: _____

APPROVED BY: _____

16. FORMS**LABORATORY NOTICE OF TEST FAILURE TO OVSC**FMVSS NO.: 118

TEST DATE: _____

LABORATORY: _____

CONTRACT NO.: _____ ; DELV. ORDER NO.: _____

LABORATORY PROJECT ENGINEER'S NAME: _____

TEST VEHICLE DESCRIPTION: _____

VEHICLE NHTSA NO.: _____ ; VIN: _____

VEHICLE MANUFACTURER: _____

TEST FAILURE DESCRIPTION: _____

STD. REQUIREMENT, PARAGRAPH S : _____

NOTIFICATION TO NHTSA (COTR): _____

DATE: _____ ; BY: _____

REMARKS:

16. FORMS....Continued

MONTHLY TEST STATUS REPORT

FMVSS 118

DATE OF REPORT:

NO.	VEHICLE NHTSA NO., MAKE & MODEL	COMPLIANCE TEST DATE	PASS/ FAIL	DATE REPORT SUBMITTED	DATE INVOICE SUBMITTED	INVOICE PAYMENT DATE
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

16. FORMS....Continued

MONTHLY VEHICLE STATUS REPORT

FMVSS 118

DATE OF REPORT:

NO.	VEHICLE NHTSA NO., MAKE & MODEL	DATE OF DELIVERY	ODOMETER READING	TEST COMPLETE DATE	VEHICLE SHIPMENT DATE	ODOMETER READING
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						